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Nuclear Matter Effects on ϕ Production in Cu+Au Collisions at $\sqrt{s}_{NN}$ = 200 GeV with the PHENIX Muon Arms at RHIC[1] MARGARET JEZGHANI, Georgia State University, Los Alamos National Laboratory, PHENIX COLLABORATION — A major objective in the field of high-energy nuclear physics is to quantify and characterize the quark-gluon plasma formed in relativistic heavy-ion collisions. The ϕ meson is an excellent probe for studying this hot and dense state of nuclear matter due to its very short lifetime, and the absence of strong interactions between muons and the surrounding hot hadronic matter makes the ϕ to dimuon decay channel particularly interesting. Since the ϕ meson is composed of a strange and antistrange quark, its nuclear modification in heavy-ion collisions may provide insight on strangeness enhancement in-medium. Additionally, the rapidity dependence of ϕ production in asymmetric heavy-ion collisions provides a unique means to study the entanglement of hot and cold nuclear matter effects. In this talk, we present the measurement of ϕ meson production and nuclear modification in asymmetric Cu+Au heavy-ion collisions at $\sqrt{s}_{NN}$ = 200 GeV at both forward (Cu-going direction) and backward (Au-going direction) rapidities.

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